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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,560	05/16/2006	Kazuyuki Yamane	2006_0735A	3249

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EXAMINER	
PIERY, MICHAEL T	
ART UNIT	PAPER NUMBER
1791	

MAIL DATE	DELIVERY MODE
11/14/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/579,560	YAMANE ET AL.	
	Examiner	Art Unit	
	MICHAEL T. PIERY	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/16/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1-3 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sirek et al. (US 6,649,792) in view of applicant's admitted prior art (Pages 1-3 of Specification) further in view of Shiiki et al. (US 6,673,403) and Bigg et al. (US 2002/0123546).

Regarding claims 1 and 2, Sirek teaches recycling PET resin by breaking (grinding) a shaped structure (Column 2, lines 54-63), washing the pieces with alkaline water (Column 3, lines 15-29) and recovering the PET (Column 3, lines 30-38). Applicant discloses PET resin with gas barrier coating is a desirable composition for bottles, and further it is desirable to recycle these bottles (Page 2). Shiiki discloses polyglycolic acid is a gas barrier layer commonly used in conjunction with PET base resin for drink containers (i.e. bottles) (Column 1, lines 5-16; Column 2, lines 49-55; Column 4, lines 33-52). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the process of Sirek to include PET bottles containing a polyglycolic acid gas barrier layer because gas barrier layers improve the preservability of the contents therein (Applicant's Page 2) and polyglycolic acid is a suitable barrier layer while imposing little burden on the environment (Column 2, lines 5-11 of Shiiki). Sirek does not explicitly teach adjusting the moisture content of aliphatic polyester resin. However, Bigg teaches aliphatic polyesters begin degrading when the moisture content increases in the polymer (Paragraph 0020). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the process of Sirek to include a step of adjusting the moisture content of the aliphatic polyester resin because it is desirable to separate the aliphatic polyester from the PET resin in a composite bottle (Applicant's specification Page 2) and increasing the moisture content of the aliphatic polyester increases the degradation rate (Paragraph 0002 of Bigg) and therefore reduces the time required for the recycling process. The moisture content of the resin is a result effective variable because the yield of the hydrolysis reaction is dependent on the amount of water contained in the polymer. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the claimed moisture

content since it has been held that optimization of a result effective variable involves only routine skill of one in the art.

Regarding claim 3, Bigg teaches moisture content is adjusted when water diffuses into a polymer via liquid (Paragraph 0020). Though not explicitly stating immersing the polymer in the liquid, it would have been obvious to one of ordinary skill in the art at the time of the invention to immerse the polymer in a water since immersion is a well-known method of contacting a polymer with a liquid.

Regarding claims 8 and 9, Shiiki teaches using a bottle with a glycolic acid polymer (Column 2, lines 50-55) and a PET base resin (Column 4, lines 40-45).

Regarding claim 10, Shiiki teaches the bottle has a PGA/PET/PGA configuration (Column 4, lines 15-21).

Regarding claim 11, applicant discloses it is known to use colored PET bottles (Page 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to use colored aliphatic polyester resin since colored bottles prevent photodegradation of contents (Page 2).

3. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sirek et al. (US 6,649,792) in view of applicant's admitted prior art (Pages 1-3 of Specification) further in view of Shiiki et al. (US 6,673,403) and Bigg et al. (US 2002/0123546), as applied above to claim 1, further in view of Roh et al. (US 6,031,128).

The modified Sirek reference teaches the method of claim 1, as applied above.

Regarding claims 4-7, Sirek teaches an exemplary alkaline water solution for washing PET to facilitate terephthalic acid recovery but does not explicitly teach incorporating aqueous caustic soda in 1-3% and a surfactant at 70-98 degrees C. However, Roh teaches it is known to wash PET with an alkaline water solution comprising aqueous caustic soda in 1-3% (Column 5, lines 15-17) and a surfactant (Column 5, lines 32-35) at 70-98 degrees C (Column 5, lines 55-60) containing at least 1 equivalent with respect to the aliphatic polyester (Column 5, lines 59-61). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the process of Sirek to include the solution of Roh since both alkaline solutions are useful for precipitating PET and substitution of known equivalent alkaline solutions is within routine skill of one in the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL T. PIERY whose telephone number is (571)270-5047. The examiner can normally be reached on M-Th 7:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael T Piery/
Examiner, Art Unit 1791

/Christina Johnson/

Supervisory Patent Examiner, Art Unit 1791